

Activity 2

Plate Boundaries and Plate Interactions

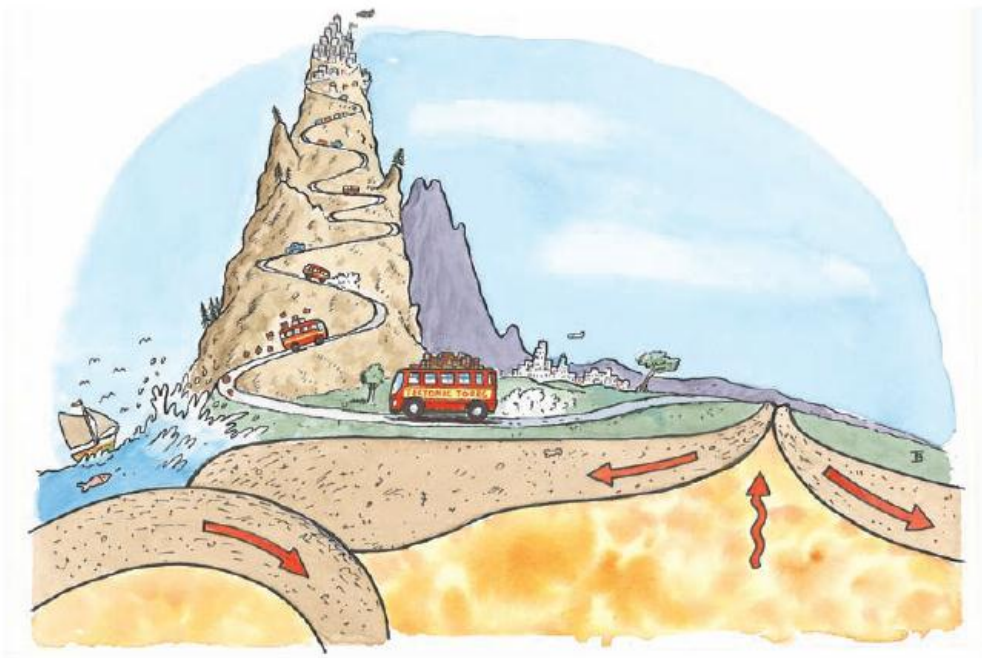
Think About It

Date _____

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- Where do you suppose you would have the most “interesting” ride on a plate? Would it be at the center, on a leading edge, on a trailing edge, or somewhere else on the plate?



WHAT DO YOU THINK?

Activity 2

Investigate Part C

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1a. Name two plates that are moving toward each other (colliding/converging).

1b. Name two plates that are moving apart (diverging).

1c. Name two plates that are sliding past each other (transform).

2a. On the map, color the boundary that separates two converging plates **BLUE**.

2b. Color the line between two diverging plates **RED**, and the line between two plates that are sliding past each other **GREEN**.

Activity 2

Plate Boundaries and Plate Interactions

Digging Deeper

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Plate boundaries

three types:

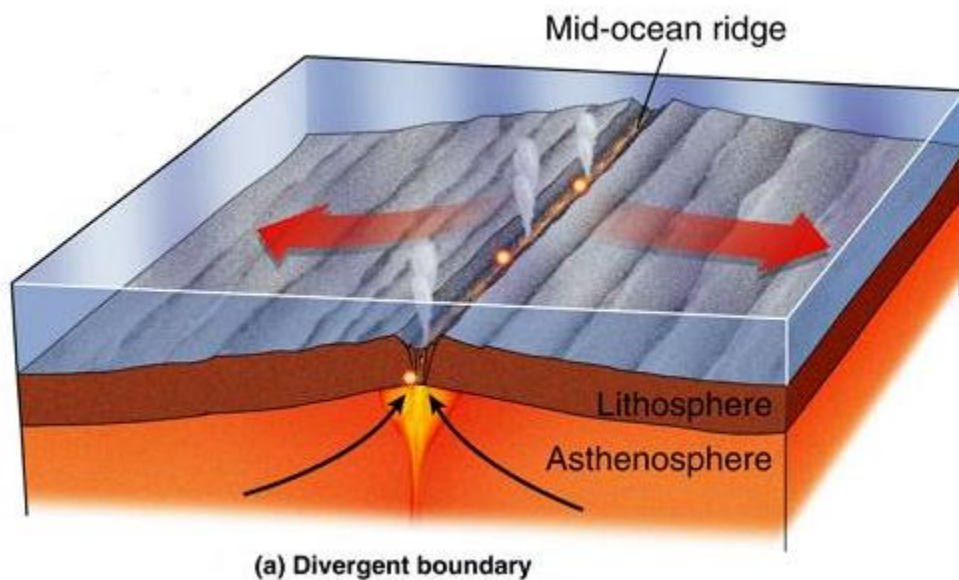
1. divergent boundaries
2. convergent boundaries
3. transform boundaries

Divergent plate boundary

a plate boundary where two plates move away from one another

Mid-ocean ridges form where two plates are spreading apart

The magma rises up through the crack and forms the central valley of the mid-ocean ridge

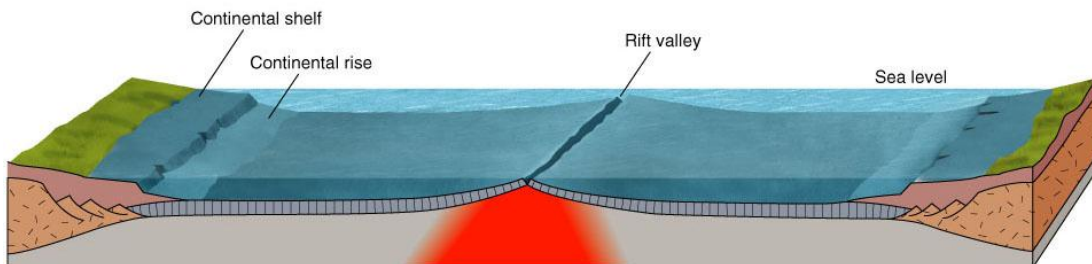
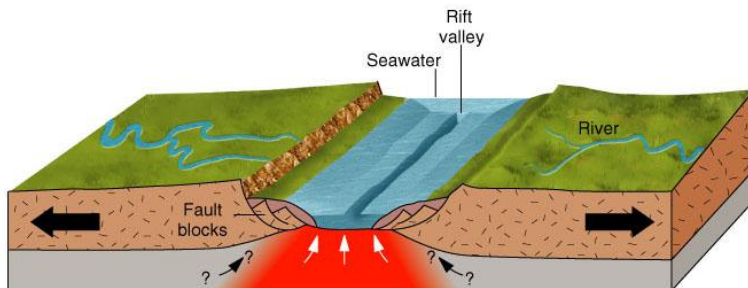
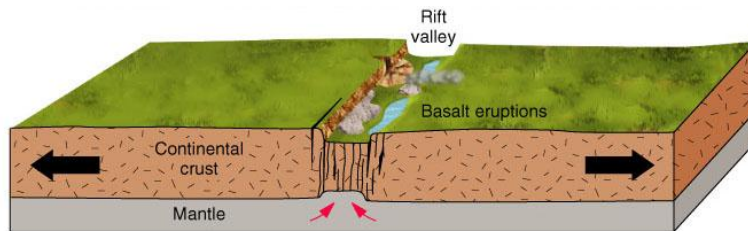


http://www.wwnorton.com/college/geo/animations/basic_plate_boundaries.htm

http://www.iris.washington.edu/hq/programs/education_and_outreach/aotm/11

Atlantic Ocean

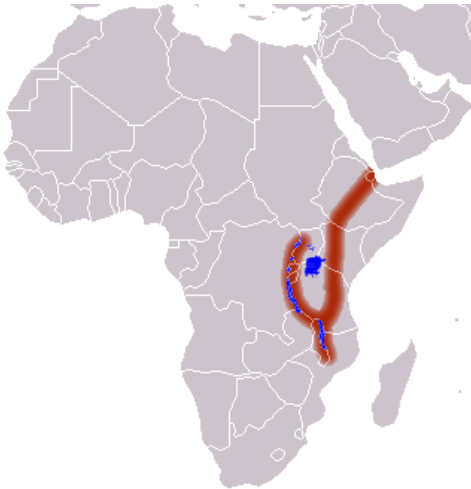
is getting wider as time goes on
and the seafloor continues to
spread



Rift valley

forms where a continental plate is being pulled apart

Example



Great Rift Valley in Africa



http://highered.mcgraw-hill.com/sites/0072402466/student_view0/chapter19/animations_and_movies.html#

Convergent plate boundary

a plate boundary where two plates move toward each another

Convergent boundaries form at three types of places:

1. ocean/ocean boundary
2. ocean/continent boundary
3. continent/continent boundary

Two oceanic plates

one ocean plate collides with another ocean plate

Since both oceanic plates are dense, one plate goes underneath the other

Example

- Pacific Plate and Indo-Australian Plate
- Pacific Plate and Philippine Plate

<http://education.sdsc.edu/optiputer/flash/convergence2.htm>

<http://whs.moodledo.co.uk/file.php/1365/EarthSystems/Earth%20Systems/Island%20Arcs%20at%20Destructive%20Plate%20Margins.swf>

http://esminfo.prenhall.com/science/geoanimations/animations/35_VolcanicAct.html

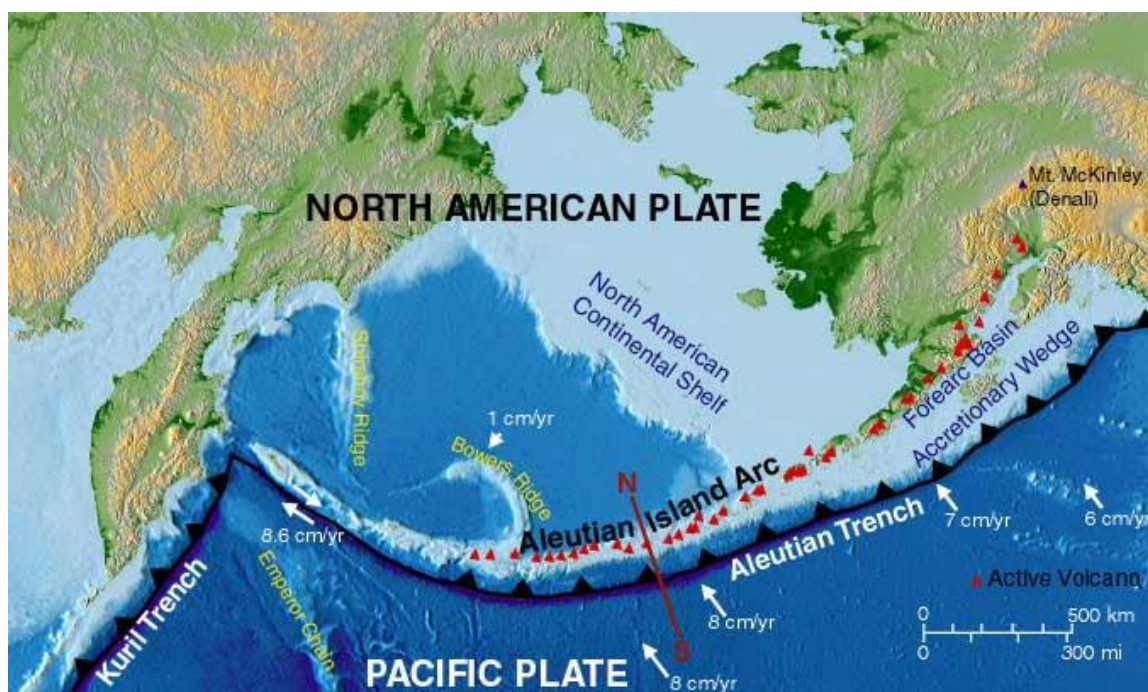
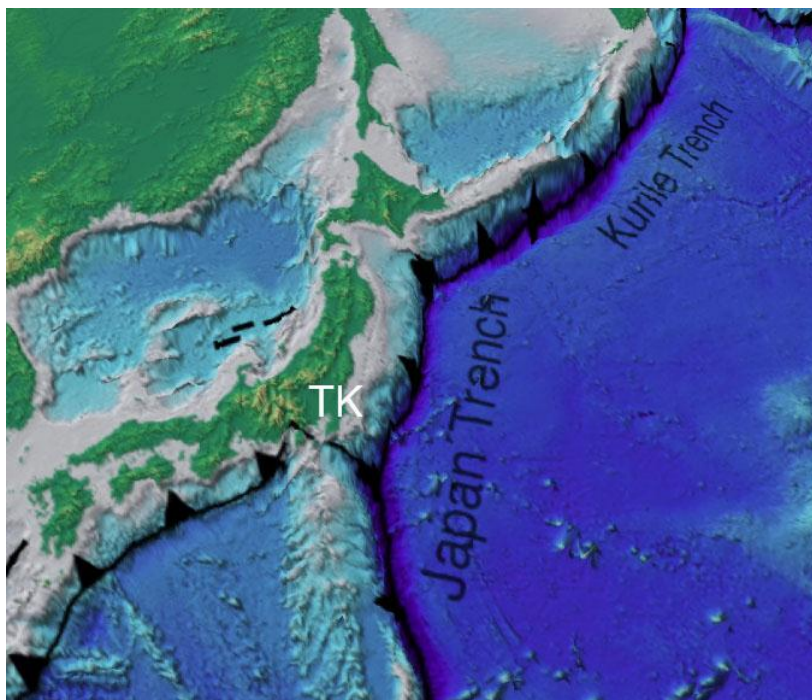
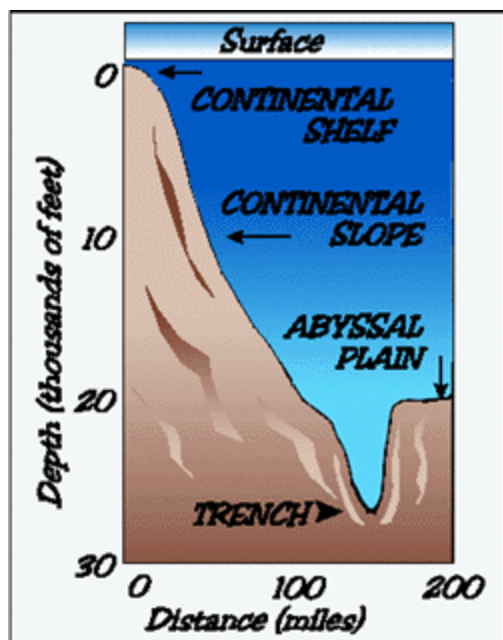
http://www.wwnorton.com/college/geo/animations/basic_plate_boundaries.htm

Subduction

the movement of one plate beneath another plate

Features formed

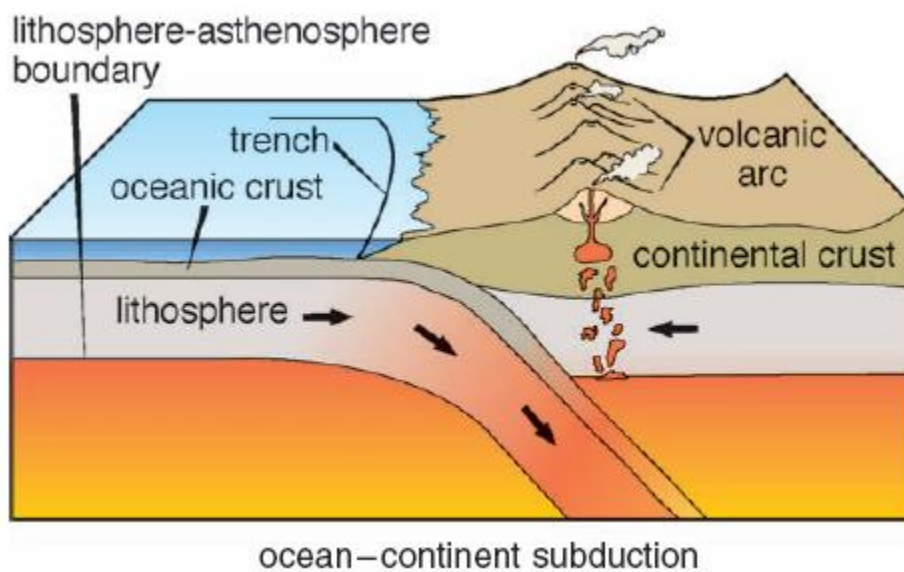
- island arc volcanoes (Japan, Aleutian islands in Alaska)
- deep sea trenches (Japan Trench)



Oceanic/continental
plates

when a denser ocean plate
collides with a less dense
continental plate

Because the oceanic plate is
heavier, or denser, it sinks
underneath the continental plate



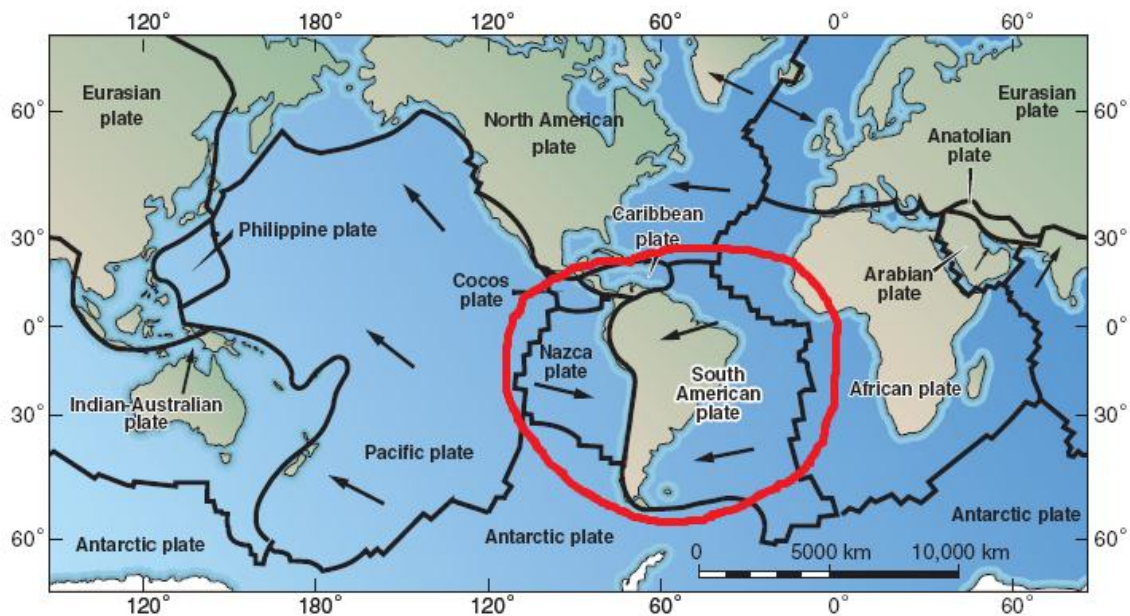
http://education.sdsc.edu/optiputer/flash/subduction_5.htm

http://esminfo.prenhall.com/science/geoanimations/animations/35_VolcanicAct.html

<http://www.phschool.com/webcodes10/index.cfm?fuseaction=home.gotoWebCode&wcprefix=cul&wcsuffix=3094>

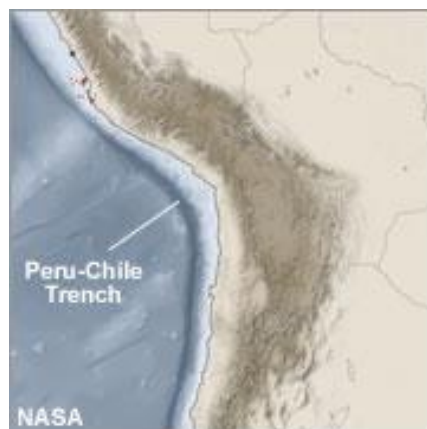
Example

Nazca Plate and South American Plate



Features formed:

- continental volcanic arc (Andes Mountains in South America)
- deep sea trench (Peru-Chile Trench)

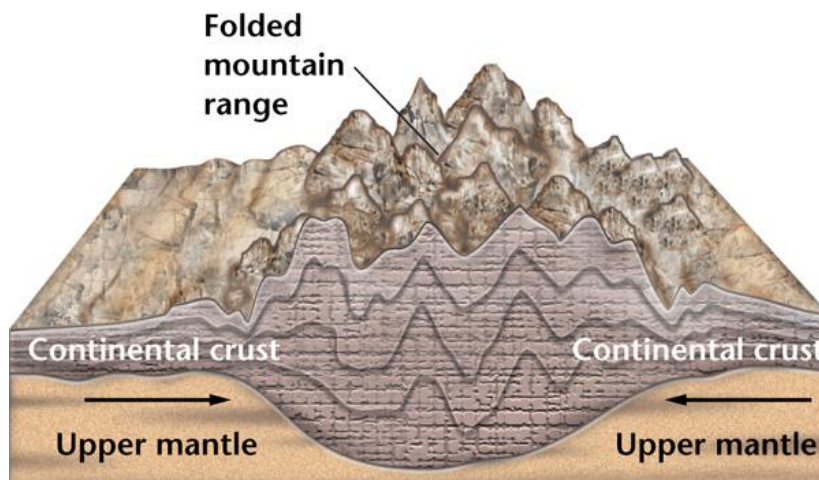


Two continental plates

occurs when two continental plates collide

Because both plates are less dense than the material in the asthenosphere, there is no subduction

Instead, the plates crumple up and form mountain ranges

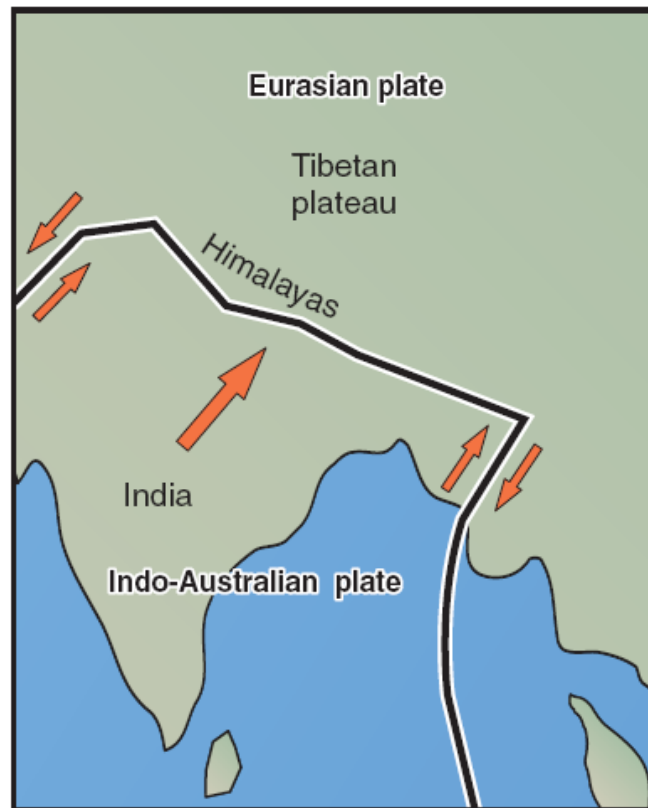


http://highered.mcgraw-hill.com/sites/0072402466/student_view0/chapter19/animations_and_movies.html#

<http://www.phschool.com/webcodes10/index.cfm?fuseaction=home.gotoWebCode&wcprefix=cul&wcsuffix=3095>

Example

Indian Plate and Eurasian Plate



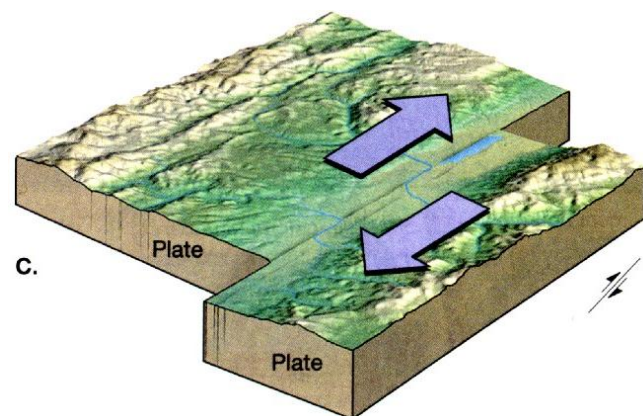
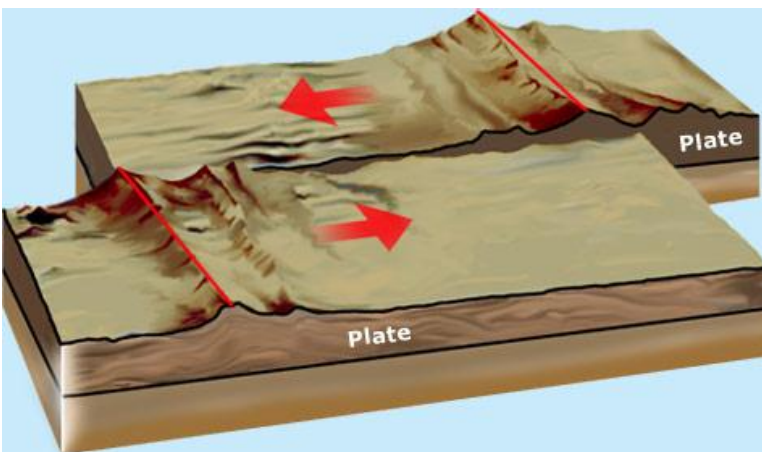
Features formed mountain ranges (Himalayas)

<http://education.sdsc.edu/optiputer/flash/indiaMove.htm>

http://www.classzone.com/books/earth_science/terc/content/visualizations/es1105/es1105page01.cfm?chapter_no=visualization

Transform plate boundary

a plate boundary where two plates slide past each other



http://www.classzone.com/books/earth_science/terc/content/visualizations/es0804/es0804page01.cfm?chapter_no=visualization

http://www.wwnorton.com/college/geo/animations/basic_plate_boundaries.htm

Example

San Andreas Fault (Pacific Plate and North American Plate)



Activity 2

Check Your Understanding

Date

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1. Name the three types of boundaries between lithospheric plates.

2. How and where are rift valleys formed?

3. How can ocean basins become wider?

4. Convergent plate boundaries can be in three different settings. What are they?

5. Describe subduction.

6. What happens when two continents collide along a convergent plate boundary?

Activity 2

Plate Boundaries and Plate Interactions

Understanding and Applying

Date

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2. Identify on the map:

- a. an established
divergent boundary
- b. a young divergent
boundary
- c. an ocean-ocean
convergent boundary
- d. an ocean-continent
convergent boundary
- e. a continent-continent
collision zone
- f. the interior of a plate
- g. transform plate